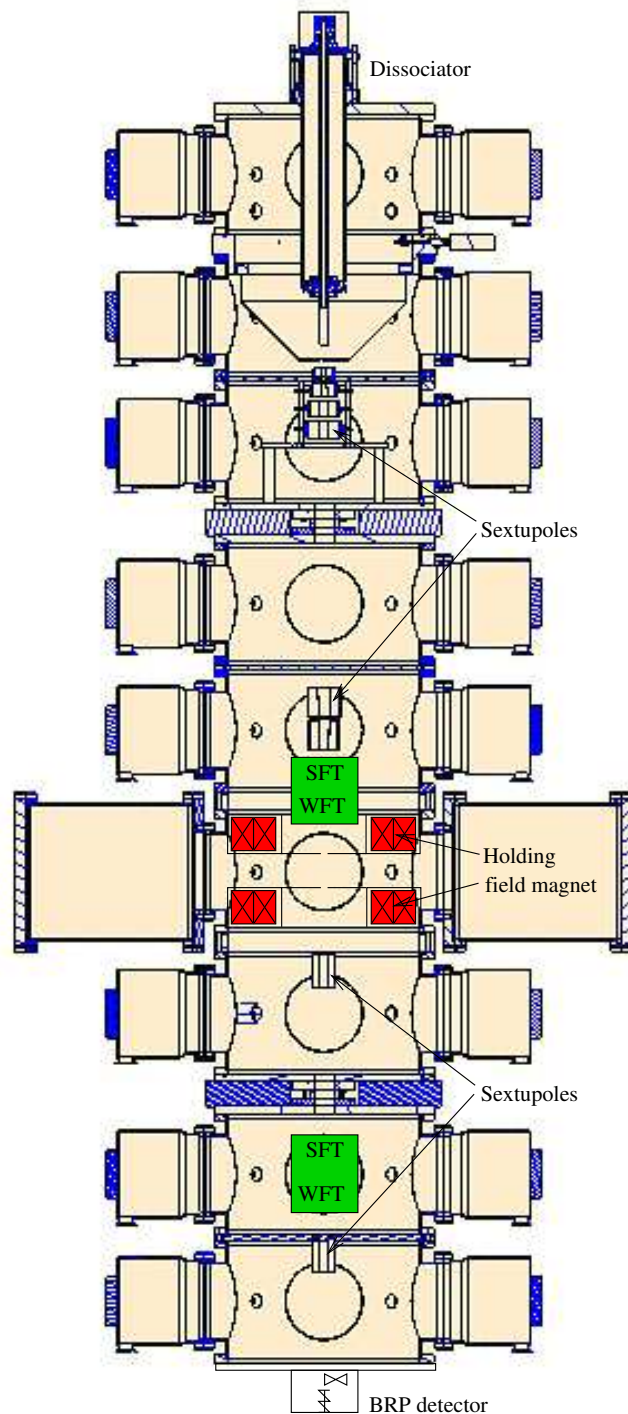


# Update on the H-Jet

1. Polarization data for 2004 run
2. SFT slow turn on fixed
3. Plans for TOF measurement



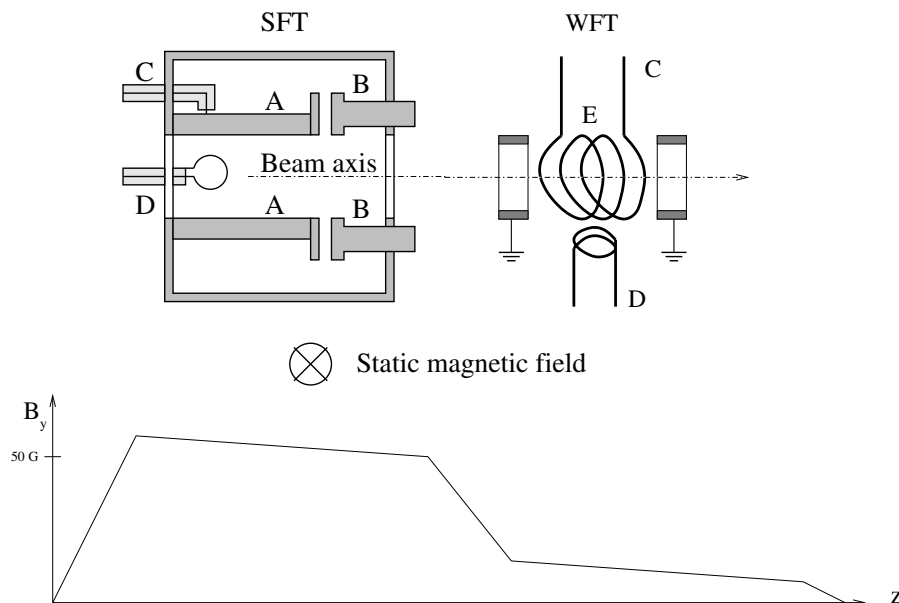
## Atomic polarization data

Day	B	avg.rates +	avg.rates -	avg.rates 0	Pol.+	Pol -
April 26	N	10490±1	10436±1	56.9±0.2	+95.70	-95.91
April 27	N	10526±0.4	10469±0.4	55.9±0.1	+95.69	-95.93
April 28	N	10180±1	10134±1	54.1±0.2	+95.73	-95.89
April 29	N	9716±1	9656±1	51.5±0.1	+95.66	-95.97
April 30	N	10056±0.8	9999.6±0.8	50.7±0.1	+95.70	-95.96
May 1	N	10169±0.3	10119±0.3	50.7±0.1	+95.73	-95.92
May 2	N	10345±0.5	10288±0.5	53.0±0.1	+95.70	-95.96
May 4	R	9251.5±0.5	9232.0±0.5	54.3±0.1	+95.82	-95.74
May 5	R	10602±0.7	10568±0.7	55.7±0.1	+95.80	-95.82
May 5	N	10791±0.6	10755±0.6	51.5±0.1	+95.81	-95.85
May 6	N	8388.8±0.5	8355.4±0.5	39.9±1	+95.78	-95.89
May 7	N	8971.3±0.6	8897.1±0.6	40.2±0.1	?	?
8am to 4pm, instable behaviour of SFT						
Corrected		8971.3±0.6	8897.1±0.6	74.2±0.1	+95.42	-95.93
May 7	N	9141.5±0.5	9110.3±0.5	47.6±0.1	+95.79	-95.84
after 4pm, stable behaviour SFT, everything OK						
May 8	N	9394.1±0.5	9350.9±0.5	47.2±1	+95.74	-95.91
May 9	N	9205.3±0.5	9171.4±0.5	47.1±0.1	+95.78	-95.86
May 10	N	9677.0±0.4	9635.5±0.4	47.6±0.1	+95.76	-95.90
May 11	N	10133±0.4	10084±0.4	46.4±0.1	+95.75	-95.94
don't use data between 12:00 and 16:30 (2 programs running)						
May 12	N	10435±0.4	10390±0.4	47.6±0.1	+95.78	-95.91
May 13	N	10838±0.4	10791±0.4	48.1±0.1	+95.78	-95.92
May 14	N	11196±0.6	11151±0.6	49.1±0.1	+95.80	-95.90

Mean values:

+95.73±0.05/-95.91±0.03 (April 26-May 14, normal field direction)  
 +95.81±0.01/-95.78±0.05 (May 4-May 5, reversed field direction)

## Slow turn on of SFT



- High frequency transitions used to exchange occupation numbers of the atomic hydrogen states.  
⇒ Nuclear polarization
- Problem: Slow start up (up to 10s) of the strong field transition caused by creating short living plasma in cavity.
- Creation of the plasma depends on surrounding magnetic fields, gas density and RF-power.
- Rise time of RF-power shortend after using RF-switch, but problem still occurred.
- Too many magnetic fields (static, gradient, main target field) to puls.

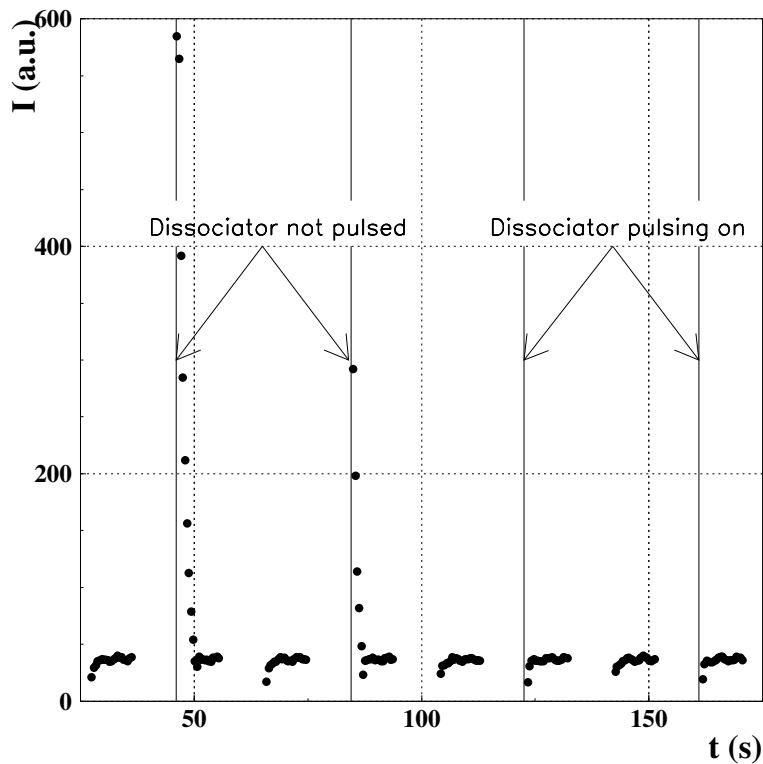
## Solving the problem

Switching off the dissociator for 10 ms before turning on the SFT.

⇒ Gas density reduced in the cavity.

⇒ Plasma creation suppressed.

Deadtime should be as small as possible but longer than the drift time of the atoms from dissociator to cavity (2ms)



Lines denote when SFT is turned on.

## Plan for TOF Measurement

- Recent TOF measurements done using a high frequency transition and BRP.

But: Velocity distribution was altered by the sextupole system of the BRP.

⇒ No clear information about velocity at IP.

- New plan includes insertion of a fast chopper (300 Hz) in chamber #4 and measurement of the TOF distribution at the IP.

⇒ Direct measurement of the velocity distribution at the IP.

⇒ Exact determination of the target density.

